

### **REMARKS**

This is responsive to the Examiner's Office Action dated April 24, 2007. Applicant has hereby canceled withdrawn Claims 11-24 and added new Claims 25-38. Thus, Claims 1-10 and 25-38 are pending in this application, and the status of all claims and the text of all pending claims are shown above.

Applicant reserves the right to pursue the canceled claims in one or more continuing applications and/or at a later date.

### **CLAIMS**

The Examiner rejected Claims 1-10 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Nos. 5,738,728, 5,743,960, 5,741,554, and 5,916,524 to Tisone, and U.S. Patent Nos. 5,338,688, 5,658,802, and 5,807,522 to Deeg et al. (hereafter "Deeg"), Hayes et al. (hereafter "Hayes"), and Brown et al. (hereafter "Brown"), respectively. The Examiner further rejected Claims 1-10 under 35 U.S.C. § 102(e) as being anticipated by U.S. patent documents 2002/0001675 A1, and 6,576,295 B2 to Tisone. These Tisone references are members of the same patent family and/or disclose similar subject matter and are hereafter collectively referred to as "Tisone."

Applicant respectfully traverses these rejections and the Examiner's characterization of the cited references on the bases set forth below.

Applicant would like to point out that on page 2, paragraph 3 of the Office Action, it is believed that the Examiner intended to refer to Claims 1-10 and not "Claims 1-0" and intended Brown to be the Applicant of the '522 patent and not Tisone.

As a preliminary matter, Applicant admits that all of the references cited by the Examiner relate to dispensing of liquids. Applicant further admits that at least some of the Tisone references teach an arrangement of a "positive displacement pump" and "dispenser" as set forth in some of Applicant's claims. However, as discussed further below, none of Deeg, Hayes or Brown teach or suggest such an arrangement.

As also discussed further below, Tisone, Deeg, Hayes and Brown fail to teach or suggest other limitations of the claimed invention.

**The Claimed Invention is Not Taught or Suggested by the Prior Art**

Applicant's independent Claim 1 is directed to a method for high-speed precise dispensing of microfluidic quantities of a reagent onto or into a target and recites, among other things (emphasis added):

creating a user-defined *text file* containing lists of white space delimited numbers defining a dispense pattern that is to be formed on or in said target, said *text file* being accessible by said controller through a software program such that rapid and accurate dispensing is performed.

The use of such a novel and non-obvious text file as set forth in the claimed invention provides several key benefits and advantages, as disclosed in Applicant's specification, for controlling the dispensing of reagents not hitherto available in the prior art. See, for example, paragraph numbers [0010], [0200] and [0201] of the specification as filed. For instance, paragraph number [0010] teaches (emphasis added):

*Advantageously, the use of such text file control* allows high-speed precision dispensing of one or more reagents with a wide dynamic range of dispense volumes in complex combinatorial patterns, ratios and arrays onto or into multiple predetermined locations of a desired target or substrate. *This is particularly advantageous* when a large number of permutations of different reagent and permutations of reagent volume ratios are involved.

Furthermore, a search on the USPTO's Patent and Patent Application database with the key words "text file" in the claims field and "dispense" and "reagent" in all fields yielded only three hits. These are U.S. Patent Application Publication Nos. 2006/0211132 A1, 2004/0219688 A1, and 2002/0159919 A1. **The first hit is a CIP application of the present application, the second hit is the present application itself, and the third hit is the parent of the present application.** (The Examiner is welcome to independently verify these search results.) This provides further convincing evidence as to the uniqueness of the claimed invention.

Claims 1-10 stand rejected as anticipated by Tisone, Deeg, Hayes and Brown. Applicant disagrees that Tisone, Deeg, Hayes and Brown disclose every limitation of the rejected claims. "A claim is anticipated only if each and every element as set forth in the claim is found, either

expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Applicant further notes the Examiner’s failure to find support in the cited references of every limitation of the rejected claims. In the Office Action, the Examiner merely sets forth a blanket statement that the cited art “teaches methods an apparatus for high speed dispensing of microfluidic reagents comprising a dispensing means, a displacement pump, means to control the dispensing and the associated means to track the position of the dispensed reagent.” Though Applicant has already admitted that the cited art relates to dispensing of liquids, the Examiner’s general statement is still not accurate as to at least some of the cited references.

All the cited references have been carefully studied and the impropriety of each of the Examiner’s rejection is detailed further below.

**Claims 1-10 Are Not Anticipated by Deeg**

Deeg, as a preliminary matter, is directed to a “bubble-jet” dispensing technique and does not teach or suggest “a positive displacement pump in fluid communication with said dispenser for metering precise quantities of said reagent to said dispenser” as set forth in Applicant’s Claim 1. Thus, Claim 1 is clearly not anticipated by Deeg.

Claim 1 further recites, among other things (emphasis added), “creating a user-defined *text file containing lists of white space delimited numbers* defining a dispense pattern that is to be formed on or in said target.” There is no teaching or suggestion in Deeg to create a text file as set forth in Applicant’s Claim 1. Thus, Deeg cannot possibly anticipate Claim 1.

The disclosure of Deeg has been carefully reviewed, and not only does it have no mention or suggestion of a text file, it further fails to teach or suggest any lists of white space delimited numbers. Deeg does use the word “delimited” twice (column 1, line 46 and column 3, line 29), however, in a different context while referring to a reagent domain (1) which is Deeg’s “target.”

Thus, Deeg fails to expressly or inherently describe several elements as set forth in Applicant’s Claim 1 and cannot possibly anticipate Claim 1.

Claims 2-10 depend from Claim 1 and are patentable for at least the same reason(s) that Claim 1 is patentable. Moreover, at least some of these claims recite further patentable features.

For example, but not limited to, Deeg fails to teach or suggest: “a solenoid valve” or a dispenser that comprises “a solenoid valve” (Claim 4) or a solenoid valve “operated at a

frequency such that its operation is mechanically modulated so that it remains open in oscillation to facilitate ejection of a predetermined volume of said reagent" (Claim 5); a text file "created by a transformation of data using spreadsheet formulas" (Claim 8); and white space that comprise "a tab" (Claim 9) or "a carriage return" (Claim 10).

Accordingly, Applicant submits that the anticipation rejection of Claims 1-10 based on Deeg is improper and should be withdrawn.

**Claims 1-10 Are Not Anticipated by Hayes**

Hayes, as a preliminary matter, is directed to "electro-mechanical dispensers" and does not teach or suggest "a positive displacement pump in fluid communication with said dispenser for metering precise quantities of said reagent to said dispenser" as set forth in Applicant's Claim 1. Hayes (column 4, lines 24-30) does disclose a "positive pressure supply" which is not a metering positive displacement pump or device but instead is "used to move fluids throughout the various components of the apparatus and may also be used to clear obstacles from the tubing, valves, etc." Thus, Claim 1 is clearly not anticipated by Hayes.

Claim 1 further recites, among other things (emphasis added), "creating a user-defined *text file containing lists of white space delimited numbers* defining a dispense pattern that is to be formed on or in said target." There is no teaching or suggestion in Hayes to create a text file as set forth in Applicant's Claim 1. Thus, Hayes cannot possibly anticipate Claim 1.

The disclosure of Hayes has been carefully reviewed, and not only does it have no mention or suggestion of a text file, it further fails to teach or suggest any lists of white space delimited numbers.

Thus, Hayes fails to expressly or inherently describe several elements as set forth in Applicant's Claim 1 and cannot possibly anticipate Claim 1.

Claims 2-10 depend from Claim 1 and are patentable for at least the same reason(s) that Claim 1 is patentable. Moreover, at least some of these claims recite further patentable features.

For example, but not limited to, Hayes fails to teach or suggest: a positive displacement pump and dispenser arrangement wherein the dispenser comprises "a solenoid valve" (Claim 4) or a solenoid valve "operated at a frequency such that its operation is mechanically modulated so that it remains open in oscillation to facilitate ejection of a predetermined volume of said

reagent" (Claim 5); a text file "created by a transformation of data using spreadsheet formulas" (Claim 8); and white space that comprise "a tab" (Claim 9) or "a carriage return" (Claim 10).

Accordingly, Applicant submits that the anticipation rejection of Claims 1-10 based on Hayes is improper and should be withdrawn.

**Claims 1-10 Are Not Anticipated by Brown**

Brown, as a preliminary matter, is directed to a contact ("tapping") dispensing technique and does not teach or suggest "a positive displacement pump in fluid communication with said dispenser for metering precise quantities of said reagent to said dispenser" as set forth in Applicant's Claim 1. Thus, Claim 1 is clearly not anticipated by Brown.

Claim 1 further recites, among other things (emphasis added), "creating a user-defined *text file containing lists of white space delimited numbers* defining a dispense pattern that is to be formed on or in said target." There is no teaching or suggestion in Brown to create a text file as set forth in Applicant's Claim 1. Thus, Brown cannot possibly anticipate Claim 1.

The disclosure of Hayes has been carefully reviewed, and not only does it have no mention or suggestion of a text file, it further fails to teach or suggest any lists of white space delimited numbers.

Thus, Brown fails to expressly or inherently describe several elements as set forth in Applicant's Claim 1 and cannot possibly anticipate Claim 1.

Claims 2-10 depend from Claim 1 and are patentable for at least the same reason(s) that Claim 1 is patentable. Moreover, at least some of these claims recite further patentable features.

For example, but not limited to, Brown fails to teach or suggest: a positive displacement pump and dispenser arrangement wherein the dispenser comprises "a solenoid valve" (Claim 4) or a solenoid valve "operated at a frequency such that its operation is mechanically modulated so that it remains open in oscillation to facilitate ejection of a predetermined volume of said reagent" (Claim 5); a text file "created by a transformation of data using spreadsheet formulas" (Claim 8); and white space that comprise "a tab" (Claim 9) or "a carriage return" (Claim 10).

Accordingly, Applicant submits that the anticipation rejection of Claims 1-10 based on Brown is improper and should be withdrawn.

**Claims 1-10 Are Not Anticipated by Tisone**

As admitted above, at least some of the Tisone references ("Tisone") teach an arrangement of a "positive displacement pump" and "dispenser" as set forth in Applicant's Claim 1.

Claim 1 further recites, among other things (emphasis added), "creating a user-defined *text file containing lists of white space delimited numbers* defining a dispense pattern that is to be formed on or in said target." There is no teaching or suggestion in Tisone to create a text file as set forth in Applicant's Claim 1. Thus, Tisone cannot possibly anticipate Claim 1.

The disclosures of Tisone have been carefully reviewed, and not only do they have no mention or suggestion of a text file, they further fail to teach or suggest any lists of white space delimited numbers.

Thus, Tisone fails to expressly or inherently describe several elements as set forth in Applicant's Claim 1 and cannot possibly anticipate Claim 1.

Claims 2-10 depend from Claim 1 and are patentable for at least the same reason(s) that Claim 1 is patentable. Moreover, at least some of these claims recite further patentable features.

For example, but not limited to, Tisone fails to teach or suggest: a solenoid valve "operated at a frequency such that its operation is mechanically modulated so that it remains open in oscillation to facilitate ejection of a predetermined volume of said reagent" (Claim 5); a text file "created by a transformation of data using spreadsheet formulas" (Claim 8); and white space that comprise "a tab" (Claim 9) or "a carriage return" (Claim 10).

Accordingly, Applicant submits that the anticipation rejection of Claims 1-10 based on Tisone is improper and should be withdrawn.

Thus, on the bases set forth herein, Applicant submits that Claims 1-10 are in condition for allowance.

**New Claims 25-38 Are Allowable**

New Claims 25-38 have been added as shown above. The Examiner's consideration of these new claims is respectfully requested. No new matter is believed to have been introduced.

Claims 25-38 depend from Claim 1 and are patentable for at least the same reason(s) that Claim 1 is patentable. Moreover, at least some of these claims recite further patentable features

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that are not taught or suggested by the prior art. Accordingly, Applicant submits that Claims 25-38 are in condition for allowance.

#### INFORMATION DISCLOSURE STATEMENT

Applicant is submitting herewith a Supplemental Information Disclosure Statement listing eighteen (18) references to be considered by the Examiner.

It should be noted that all twelve (12) of the foreign patent and non-patent literature references cited in this Supplemental Information Disclosure Statement were earlier cited in an Information Disclosure Statement filed on January 31, 2005, prior to the receipt of a first Office Action on the merits, and all of them are of record in prior U.S. patent applications which are relied upon for an earlier filing date under 35 U.S.C. § 120. Accordingly, copies of these references were not submitted pursuant to 37 C.F.R. § 1.98(d).

However, the Examiner did not consider them and asserted that no copies have been provided for consideration.

Applicant would like to point out that: (a) a copy of the European reference numbered 7 was provided in the related grandparent U.S. patent application No. 09/571,452, filed May 16, 2000; (b) a copy of the PCT references numbered 8-10 were provided in the related parent U.S. patent application No. 09/945,388, filed August 30, 2001; and (c) copies of the non-patent references numbered 11-16 were provided in the related great-grandparent U.S. patent application No. 09/146,614, filed September 3, 1998.

**Copies of these 12 references are again being provided herewith, as a courtesy to the Examiner.**

*Applicant respectfully requests the Examiner to return an initialed and signed copy of the enclosed subject PTO/SB/08 Equivalent Form, which also lists the 12 references previously cited for the Examiner's consideration, in the next communication to the undersigned Attorney of Record.*

#### CONCLUSION

In view of the foregoing, the present application is believed to be in condition for allowance, and such allowance is respectfully requested. If further issues remain to be resolved, the Examiner is cordially invited to contact the undersigned such that any remaining issues may

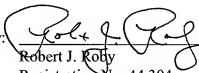
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be promptly resolved. Also, please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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